~~Claims~~

WHAT IS CLAIMED IS:

1. - 29. (canceled)

30. (new) A hard metal of WC for tools for mechanical working of stone, concrete, and asphalt, comprising:

5 to 25 % by weight of a binder based on Co or Co and Ni;

wherein the hard metal has a coercive field strength up to 17.0 kA/m;

wherein the binder contains up to 30 % of Fe;

wherein the hard metal has a magnetic saturation (σ or $4\pi\sigma$, in units of microtesla times cubic meter per kilogram, respectively) as a function of the Co proportion (X) in % by weight of the hard metal in a range of

$\sigma = 0.11\ X$ to $\sigma = 0.137\ X$ or

$4\pi\sigma = 0.44\ \pi\ X$ to $4\pi\sigma = 0.548\ \pi\ X$.

31. (new) The hard metal according to claim 30, wherein the coercive field strength is maximally 9.5 kA/m.

32. (new) The hard metal according to claim 30, wherein the coercive field strength is maximally 8.0 kA/m.

33. (new) The hard metal according to claim 30, wherein the coercive field strength is maximally 7.2 kA/m.

34. (new) The hard metal according to claim 30, wherein the coercive field strength is within a range of 1.6 kA/m to 6.4 kA/m.

35. (new) The hard metal according to claim 30, wherein the binder contains nanoparticles of ordered phases of W, Co, and/or C.

36. (new) The hard metal according to claim 35, wherein the nanoparticles are coherent with a cobalt matrix of the binder.

37. (new) The hard metal according to claim 35, wherein the greatest measurable D_{hkl} value of the ordered phases of the nanoparticles is 0.215 nm ± 0.007 nm.

38. (new) The hard metal according to claim 35, wherein at least parts of the nanoparticles have a hexagonal lattice structure or a cubic lattice structure.

39. (new) The hard metal according to claim 35, wherein the nanoparticles are comprised of one or several of the phases $Co_XW_YC_Z$ with x = 1 to 7, y = 1 to 10, and z = 0 to 4.

40. (new) The hard metal according to claim 35, wherein the nanoparticles are comprised of a phase Co_2W_4C.

41. (new) The hard metal according to claim 35, wherein the nanoparticles are comprised of one or several intermetallic phases of W and Co.

42. (new) The hard metal according to claim 30, wherein the WC grains are partially or entirely round.

43. (new) The hard metal according to claim 30, wherein the W concentration in the binder is in a range of 10 to 30 atomic %.

44. (new) The hard metal according to claim 30, containing 3 to 60 % by volume diamond grains with a coating of carbides, carbonitrides, and/or nitrides of at least one of Ti, Ta, Nb, W, Cr, Mo, V, Zr, Hf, and Si.

45. (new) The hard metal according to claim 30, wherein the binder contains at least one of fcc-Co and hcp-Co in the form of a solid solution of at least one of W and C in Co.

46. (new) The hard metal according to claim 30, wherein the lattice constants of the solid solution is 1 % to 5 % greater than that of pure Co.

47. (new) The hard metal according to claim 36, wherein an average grain size of WC is within a range of 0.2 µm to 20 µm.

48. (new) The hard metal according to claim 36, wherein an average grain size of WC is within a range of 2 µm to 20 µm.

49. (new) The hard metal according to claim 36, wherein an average grain size of WC is within a range of 4 µm to 20 µm.

50. (new) The hard metal according to claim 36, wherein the binder contains up to a total of 0.4 % by weight of at least one of Ta, Nb, and Ti in the form of cubic carbides, solid solution, or carbides and solid solution.

51. (new) The hard metal according to claim 36, wherein the binder contains up to, respectively, 1.5 % by weight of at least one of Cr, Mo, V, Zr, and Hf in the form of carbides, solid solutions; or carbides and solid solutions.

52. (new) A hard metal of WC for tools for mechanical working of stone, concrete, and asphalt, comprising:

5 to 25 % by weight of a binder based on Co or Co and Ni;

wherein the binder contains nanoparticles of ordered phases of W, Co, and/or C;

wherein the hard metal has a coercive field strength above 17.0 kA/m and up to 30.0 kA/m;

wherein the hard metal has a magnetic saturation (σ or $4\pi\sigma$, in units of microtesla times cubic meter per kilogram, respectively) as a function of the Co proportion

(X) in % by weight of the hard metal in a range of

$\sigma = 0.11\ X$ to $\sigma = 0.130\ X$ or

$4\pi\sigma = 0.44\ \pi\ X$ to $4\pi\sigma = 0.520\ \pi\ X$.

53. (new) The hard metal according to claim 52, wherein an average grain size of WC is within a range of 0.2 µm to 20 µm.

54. (new) The hard metal according to claim 52, wherein an average grain size of WC is within a range of 2 µm to 20 µm.

55. (new) The hard metal according to claim 52, wherein an average grain size of WC is within a range of 4 µm to 20 µm.

56. (new) The hard metal according to claim 52, wherein the binder contains up to a total of 0.4 % by weight of at least one of Ta, Nb, and Ti in the form of cubic carbides, solid solution, or carbides and solid solution.

57. (new) The hard metal according to claim 52, wherein the binder contains up to, respectively, 1.5 % by weight of at least one of Cr, Mo, V, Zr, and Hf in the form of carbides, solid solutions; or carbides and solid solutions.

58. (new) The hard metal according to claim 52, wherein the nanoparticles are coherent with cobalt matrix of the binder.

59. (new) The hard metal according to claim 52, wherein the nanoparticles are coherent with cobalt matrix of the binder.

60. (new) The hard metal according to claim 52, wherein the greatest measurable D_{hkl} value of the ordered phases of the nanoparticles is 0.215 nm ± 0.007 nm.

61. (new) The hard metal according to claim 52, wherein at least parts of the nanoparticles have a hexagonal lattice structure or a cubic lattice structure.

62. (new) The hard metal according to claim 52, wherein the nanoparticles are comprised of one or several of the phases $Co_XW_YC_Z$ with x = 1 to 7, y = 1 to 10, and z = 0 to 4.

63. (new) The hard metal according to claim 63, wherein the nanoparticles are comprised of a phase Co_2W_4C.

64. (new) The hard metal according to claim 52, wherein the nanoparticles are comprised of one or several intermetallic phases of W and Co.

65. (new) The hard metal according to claim 52, wherein the binder contains up to 30 % by weight of Fe.

66. (new) The hard metal according to claim 52, wherein the WC grains are partially or entirely round.

67. (new) The hard metal according to claim 52, wherein the W concentration in the binder is in a range of 10 to 30 atomic %.

68. (new) The hard metal according to claim 52, containing 3 to 60 % by volume diamond grains with a coating of carbides, carbonitrides, and/or nitrides of at least one of Ti, Ta, Nb, W, Cr, Mo, V, Zr, Hf, and Si.

69. (new) The hard metal according to claim 52, wherein the binder contains at least one of fcc-Co and hcp-Co in the form of a solid solution of at least one of W and C in Co.

70. (new) The hard metal according to claim 52, wherein the lattice constants of the solid solution is 1 % to 5 % greater than that of pure Co.

71. (new) A hard metal of WC comprising:

5 to 25 % by weight of a binder based on Co or Co and Ni;

wherein the binder contains at least 5 % by volume nanoparticles of ordered phases of W, Co, and/or C;

wherein the hard metal has a magnetic saturation (σ or $4\pi\sigma$, in units of microtesla times cubic meter per kilogram, respectively) as a function of the Co proportion (X) in % by weight of the hard metal in a range of

$\sigma = 0.11\ X$ to $\sigma = 0.137\ X$ or

$4\pi\sigma = 0.44\ \pi\ X$ to $4\pi\sigma = 0.548\ \pi\ X$.

72. (new) The hard metal according to claim 71, containing up to 40 % by weight carbides, nitrides, and/or carbonitrides of at least one of Ta, Nb, Ti, V, Cr, Mo, B, Zr, and Hf.

73. (new) The hard metal according to claim 71, wherein the nanoparticles contain at least one of Ni, Fe, Ta, Nb, Ti, Cr, Mo, Zr, and Hf.

74. (new) The hard metal according to claim 71, wherein the nanoparticles are coherent with cobalt matrix of the binder.

75. (new) The hard metal according to claim 71, wherein the greatest measurable D_{hkl} value of the ordered phases of the nanoparticles is 0.215 nm ± 0.007 nm.

76. (new) The hard metal according to claim 71, wherein at least parts of the nanoparticles have a hexagonal lattice structure or a cubic lattice structure.

77. (new) The hard metal according to claim 71, wherein the nanoparticles are comprised of one or several of the phases $Co_XW_YC_Z$ with x = 1 to 7, y = 1 to 10, and z = 0 to 4.

78. (new) The hard metal according to claim 71, wherein the nanoparticles are comprised of a phase Co_2W_4C.

79. (new) The hard metal according to claim 71, wherein the nanoparticles are comprised of one or several intermetallic phases of W and Co.

80. (new) The hard metal according to claim 71, wherein the binder contains up to 30 % by weight of Fe.

81. (new) The hard metal according to claim 71, wherein the WC grains are partially or entirely round.

82. (new) The hard metal according to claim 71, wherein the W concentration in the binder is in a range of 10 to 30 atomic %.

83. (new) The hard metal according to claim 71, containing 3 to 60 % by volume diamond grains with a coating of carbides, carbonitrides, and/or nitrides of at least one of Ti, Ta, Nb, W, Cr, Mo, V, Zr, Hf, and Si.

84. (new) The hard metal according to claim 71, wherein the binder contains at least one of fcc-Co and hcp-Co in the form of a solid solution of at least one of W and C in Co.

85. (new) The hard metal according to claim 71, wherein the lattice constants of the solid solution is 1 % to 5 % greater than that of pure Co.

86. (new) A tool for mechanically working stone, concrete, and asphalt, comprising at least one cutting element, wherein the cutting element is comprised of a hard metal according to claim 30.

87. (new) A tool for mechanically working stone, concrete, and asphalt, comprising at least one cutting element, wherein the cutting element is comprised of a hard metal according to claim 52.

88. (new) A tool for mechanically working stone, concrete, and asphalt,

comprising at least one cutting element, wherein the cutting element is comprised of a hard metal according to claim 71.